



**Eastland**  
Network

**2022**

**Asset Management Plan  
(Update)**

**31 March 2022**



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# 1 Executive summary

Kia ora and welcome to Eastland Networks' 2022 asset management plan (AMP) update.

In this AMP, we provide updates on our key initiatives and material changes to our forecast expenditure on the network assets.

During FY2022, we continued with the direction set out in our asset management roadmap (where our goal is to be a fully proficient asset manager by the end of FY2023). We have experienced slippage in our process improvement work (mainly due to resource constraints because of COVID-19), however, we have made substantial progress in other areas and remain on track to achieving our goal.

The network performance was good in FY2021, which was attributable to fewer adverse weather events. However, FY2022 performance is less favourable as we are experiencing an increase in adverse weather events and third party damage to the network. Our FY2021 reliability review identified a range of improvements and we expect the benefits of these will be seen in future years. Pleasingly, vegetation impacts have reduced, and work around our subtransmission system has been particularly effective at reducing the incidents of vegetation-related outages.

The material change in this AMP is the acceleration of our wood pole replacement program. We are currently more than 30% through the inspection of the overhead network (using new inspection standards) and the results have indicated an increase in poor health wood poles (i.e. health scores of H1 and H2). The increase in poor health poles was not unexpected (and the 2021 AMP had forecast renewals above the level of H1 and H2 poles in contemplation of this), however, the incident of H1 poles is higher than we anticipated, and in response we have accelerated the replacement of an additional 530 poles during FY2023 and FY2024. External (out of region) contractors will be undertaking this work as our current contractors are already fully committed.

The accelerated pole replacement program will cost \$4.4 million over FY2023 and FY2024. We have deferred a range of other projects to ensure the overall work program is manageable. Deferrals have only been planned where the risk of doing so is low. The net increase in expenditure over the remainder of the current regulatory period (to FY2025) is \$1.9 million.

Lastly, the national and global impacts of the pandemic are affecting our operations—mainly in relation to access to materials and increasing prices. We have incorporated this cost increase where we have made changes to projects and programs. We have yet to incorporate a wholesale escalation in prices as we are yet to determine whether the increase is permanent, and we are working on efficiency initiatives to minimise the increase in costs. We intend to update project costs in the 2023 AMP.



## 2 Introduction

Eastland Network is the electricity distribution business operating and maintaining the assets and supplying consumers on the East Coast of the North Island. We supply around 25,700 consumers, with over half of the connections being located within the Gisborne township and surrounds.

Our mission is to provide 'power to the people' and we aim to do this with as little interruption to consumers as possible. Our asset management focus has changed (for the better) in the last couple of years with a heavy focus on improving asset condition assessments, systems and processes, and resource capabilities. While we have improved significantly in the last couple of years, we are always aiming to develop ourselves and our performance. We have gained significant insight into our own operations through collaborating with other networks in relation to asset management and operations.

Last year we published our full AMP which is a comprehensive document outlining our new asset direction. This Asset Management Plan is an update to last year's plan and discloses the material changes that have occurred since its publication in 31 March 2021.

The planning period for this document is 1 April 2022 to 31 March 2032. As with any long-term plan, the forecasts are more accurate for work planned in the near term. The period of certainty is likely to get shorter given the increasing changes happening within the industry.

### 2.1 Information disclosure requirements

The information within this update has been disclosed in accordance with the Electricity Distribution Disclosure Determination 2012. The requirements within Clause 2.6.5 state that an update must:

- Relate to the electricity distribution services supplied by the electricity distribution business;
- Identify any material changes to the network development plans disclosed in the last AMP;
- Identify any material changes to the lifecycle asset management (maintenance and renewal) disclosed in the last AMP;
- Provide the reasons for any material changes to the previous report on Forecast Capital Expenditure set out in Schedule 11a and the previous report on Forecast Operational Expenditure set out in Schedule 11b;
- Identify any changes to the asset management practices of the EDB that would affect Schedule 13 Report on Asset Management Maturity disclosure; and
- Contain the information set out in the schedules described in Clause 2.6.6.

Clause 2.6.6 states that every EDB must disclose:

- The report on Forecast Capital Expenditure in Schedule 11a;
- The report on Forecast Operational Expenditure in Schedule 11b;
- The report on Asset Condition in Schedule 12a;
- The report on Forecast Capacity in Schedule 12b;
- The report on Forecast Network Demand in Schedule 12c;
- The report on Forecast Interruptions and Duration in Schedule 12d.

All disclosure documents can be found at [www.eastland.co.nz](http://www.eastland.co.nz).



We have decided not to prepare Schedule 13 for this update. Whilst we have made some improvements, we did not consider that these warranted a full reassessment against the maturity criteria. We will be preparing Schedule 13 to accompany the 2023 AMP.

## **2.2 Purpose of this update**

While the main purpose of the update is to comply with the disclosure requirements, we have elected to include several sections which we feel are the core areas of focus for us in terms of asset management.

We have therefore structured the AMP to communicate with our stakeholders by:

- Presenting any changes to our operating context and performance drivers of the network;
- Outlining our progress against the 2020 asset management roadmap;
- Presenting an update on our reliability performance;
- Outlining improvements to our systems and processes;
- Presenting the material changes to the network development plans and asset lifecycle management (maintenance and renewal) plans;
- Summarising the changes in expenditure forecasts.

## **2.3 Approval of this plan**

This asset management plan was approved by the Eastland Group Board of Directors on the 23rd March 2022.

For more information please contact Eastland Network Asset and Planning Manager at [Mikaere.Ngarimu@eastland.nz](mailto:Mikaere.Ngarimu@eastland.nz).



## 3 Operating context and network issues

### 3.1 Changes in operating context and network issues

Our 2021 AMP included significant detail on the operating context and network issues. These are important matters that shape our policy and strategy. In this section we discuss any changes in relation to these matters:

*Table 1: Assessment of changes in operating context and network issues*

Context and network issue	Summary of change since the 2021 AMP
Our historical focus on delivering a high level of service, in a cost-effective manner, to one of the lowest socio-economic regions of New Zealand	No change.
Our small industrial customer base	No change.
Our network characteristics, and how these reflect the low customer density typical of a large rural supply area	No change.
How the network business benefits from the economies of scope of Eastland Group	No change.
Our ageing subtransmission and distribution assets	Improvement in relation to poles. Our renewal program continues to focus on pole replacements; however, it will take some years before the average age reduces materially.
The increasing impact of adverse weather events, vegetation outages, and the reduction in headroom in our regulatory quality targets	No change. Management of the risk posed by adverse weather events and vegetation outages continues to be a focus. We are making progress on completing the various related actions outlined in our asset management strategy, however we expect it will be a number of years before the risk reduces materially.
The potential for large new industrial load, which could exceed our current capacity	Decreasing. Interest in new large load connections has decreased (>10MW), however, existing large consumers (0.5-2MW) are indicating future load increases.
The relatively low quality of our network asset information	Improving. During FY2022 we have continued to improve the quality of asset information in relation to poles, reclosers, switches and zone substation equipment.
The increasing pace of energy transformation	No change. The energy transformation continues to progress on the same course.

### 3.2 Impact of COVID-19

While COVID-19 has only recently entered our region, the national and global impacts of the pandemic are affecting our operations. The issues we are facing, and how we are responding, include the following:

#### 3.2.1 Assets and Purchasing

Increased pricing and lead times for certain components have meant that we have had to alter the way we order materials. Project requirements need to be considered well in advance as the suppliers are finding it difficult to source certain types of materials or get services from sub-contractors to complete orders. Pricing has also increased significantly for some items. We are yet to determine whether the price increases are temporary or permanent. We are presently evaluating the basis for



the price increases and are also assessing alternative materials and intend to update project costs in the 2023 AMP.

### **3.2.2 Vaccinations and human resourcing**

Both Eastland Network's and the Government's policies regarding vaccinations and restrictions has meant some changes to how we operate. We have had to accept that some tasks usually undertaken by external contractors and consultants may take longer and that costs may be slightly higher due to the restrictions necessary to carry out tasks in a compliant manner. This has impacted progress in some areas.

Vaccination policies have meant that some contractors are no longer able to provide some services. We indicated our requirements very early on to ensure contractors were aware of our approach to vaccinations, providing them with an opportunity to plan ahead and ensure compliance.

### **3.2.3 Absenteeism**

As the requirement for testing and working from home becomes more prevalent, absenteeism is likely to increase due to the Omicron outbreak and close contact isolation requirements. This is likely to affect workflow and productivity. We have measures in place to minimise the effect on our operations and enable projects to continue.

### **3.2.4 Work deferral**

A lot of work is resourced from external (out of region) contractors. A portion of work has been deferred until restrictions ease. In addition, some landowners have been sensitive to third parties entering their properties which has caused project delays. It is likely that this will continue until some sort of normality returns regarding COVID-19.



## 4 Asset management roadmap

### 4.1 Improvements in asset management practices

In our 2020 AMP, we developed an asset management roadmap to lift the quality of the management and stewardship of our electricity network assets. In our 2021 AMP, we provided a progress update. In this update, we have again provided details of progress made during FY2022.

The objective of the roadmap is to transition Eastland Network to a fully proficient asset manager by the end of FY2023. Our target is to achieve a score of 3.0 by the end of FY2023, which means we will have implemented the main elements of ISO 55000 in a coordinated manner.

As shown in Table 2, we have experienced some slippage mainly due to resource constraints because of COVID-19. However, we have made substantial progress and remain on track to achieving our goal by the end of FY2023.

*Table 2: Status of asset management roadmap goals*

Goals	Due Date	Status
(a) To ensure that there is suitable information to support asset management decision making	October 2020*	Complete
	October 2021 <sup>†</sup>	
	June 2022 <sup>†</sup>	Work in progress
(b) To prepare a comprehensive 2021 AMP that fully addresses the identified asset management issues and strategies	March 2021	Complete
(c) To have a robust system to provide assurance to the Board over the effectiveness of AM activities and compliance with regulations	March 2021	Complete
(d) To have a systematic, and evidence-based asset management process	March 2022	Complete. Over the past two years we have implemented a comprehensive asset management process to provide oversight, analysis, evidence, and review of key asset management activities. The process is overseen by the asset management committee.
(e) Develop the key elements of an asset management system consistent with ISO 55000, which are appropriate for Eastland Network	March 2022 December 2022	This is in progress as part of the Integrated Management System project. The commencement of the Group-wide project delayed the start of this work at Eastland Network; however, we expect to complete the key elements this calendar year.
(f) Achieve an overall assessment management maturity of 3, being a fully competent asset manager	March 2023	On track

\* For key assets classes of wooden poles, concrete poles, steel structures, distribution lines, and subtransmission lines.

<sup>†</sup> Other material asset classes.

Table 3 provides details of our progress on the roadmap focus areas for FY2022 and shows that we have completed all the target areas.





Table 3: Status of FY2022 focus areas

Focus for FY2022	Status
Making network performance improvements on the back of better analysis	<p>Work completed included:</p> <ul style="list-style-type: none"> <li>Automation plan – a full review of the network feeders identified several areas that would benefit from automation. Implementation started in FY2022 with two reclosers installed (in addition to the programmed recloser replacements). Additional reclosers are planned to be installed over the next five years to further improve performance.</li> <li>Targeted pole renewals – analysis of the new condition information resulted in better targeting of pole renewal.</li> <li>Network resilience analysis – network modelling identified a vulnerable part of the network when back-feeding. Conductor capacity was increased to remove the back-feeding constraint.</li> <li>Reducing asset type risks – analysis of type issues has resulted in targeted replacement programmes for: KFE reclosers, single phase power transformers, larch creosote poles; and quad air-break switches.</li> </ul>
Continuing to build the quality of the analysis and evidence base that supports our AMP	Refer to the commentary under (d) and (e) in Table 2.
Embedding a new structure and competencies	<p>A new company structure was established to accompany the change in leadership and change in direction. A gap analysis on human resources was also completed which identified areas where the network business was lacking in skills or knowledge. Additional positions were added to the Network along with a reorganisation to align better to the change in asset management practices.</p> <p>In terms of competencies, additional improvement areas include:</p> <ul style="list-style-type: none"> <li>Customer liaison – relationship building between the consumers and network. Understanding the needs of our stakeholders.</li> <li>Easements and new lines – obtaining property easements, gaining approval for new lines and writing legal documentation. This work is complex due to the large number of land parcels with multiple owners, which has resulted in greater use of external experts.</li> <li>Engineering and operations – whilst we currently have sufficient staff, our ageing workforce means we need good succession planning to ensure a smooth transition in the future.</li> </ul>

## 4.2 Improvement highlights

In this section, we have highlighted several key projects we have been working on to improve our asset management processes and practices. These include:

### New Company values

Eastland Network, with the support of its staff, have introduced a new set of values. The values are the behaviours, attitudes and qualities that Eastland Network operate by. These include:

- 1) **Work Smart** – We use our heads and do our job well
- 2) **Awhina** – We support our teammates and have each other’s backs
- 3) **Be Safe** – We put safety first in everything we do
- 4) **Mahitahi** – We work together to achieve great things



5) Own it – We take responsibility for our actions and own our success

Completion of project highway

Eastland Group successfully implemented a new ERP and GIS system during FY2021 (known as project highway). Following completion, our information systems now comprise:

*Table 4: Eastland Network information systems.*

System	Provider	Functionality	Data held
Enterprise resource planning	SAP/Accenture	<ul style="list-style-type: none"> <li>• Asset management</li> <li>• Works management</li> <li>• Project management</li> <li>• Materials management and purchasing</li> <li>• HR</li> <li>• Finance</li> <li>• Business intelligence and reporting</li> <li>• Asset registers</li> </ul>	<ul style="list-style-type: none"> <li>• Asset health</li> <li>• Asset age</li> <li>• Asset attributes</li> <li>• Project costing</li> <li>• Asset financial information</li> </ul>
Field mobility	Blueworx / Accenture	<ul style="list-style-type: none"> <li>• Field mobility for contracting teams</li> </ul>	<ul style="list-style-type: none"> <li>• Asset Inspection</li> <li>• Works management</li> </ul>
Geographical information system	ESRI / Accenture and Eagle	<ul style="list-style-type: none"> <li>• Mapping and geospatial analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Geospatial data (visibility of asset data held in SAP)</li> <li>• Network connectivity</li> </ul>

These systems were implemented by Eastland Group, and the costs associated with them are allocated to Eastland Network and other divisions. These charges are included in business support costs.

While the changeover of our existing systems to SAP was successful, there is a range of follow up work required to enable us to fully utilise the system. The key follow up work relates to:

- Plant Maintenance – manage inspections, repairs and preventative activities. There is further work to do in relation to recording costs against activities;
- Blueworx – capture and manage asset condition and field work. This module is not yet fully implemented. We have a workaround in place using a software package called ODK-collect. The data from ODK-collect is accessible from SAP;
- Analytical reporting – financial reporting and feedback;
- Integration with mapping.

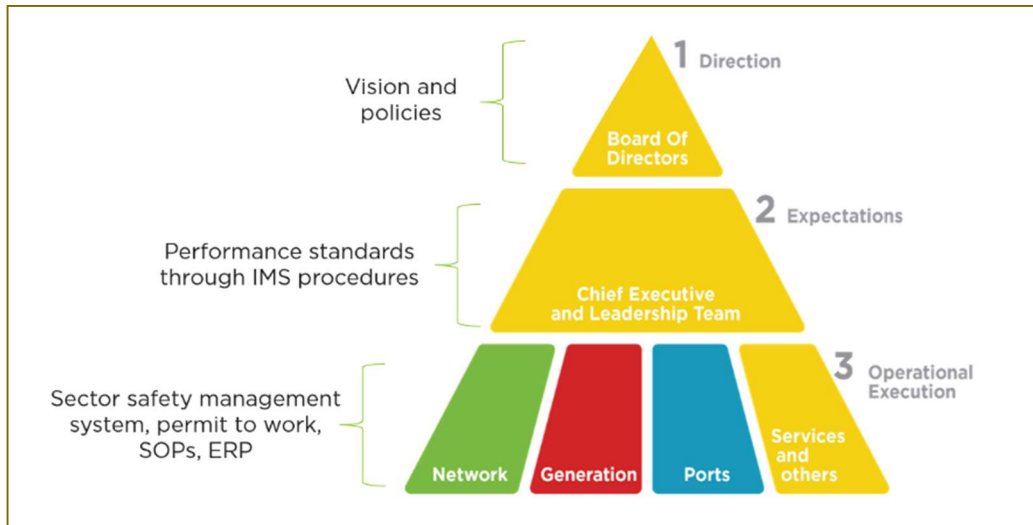
This work is expected to be completed by the end of FY2024.

Quality system review and implementation

The backbone of operating an asset intensive business is the systems and processes. Consistent with the roadmap goal (e) in Table 2, Eastland Group has recently created an Integrated Management System (Refer to Figure 1) where the overarching policies, procedures, standards and overall direction of the company is held. This system has been put in place to improve performance, ensure compliance, provide a foundation for continual improvement and the management of change, and to maximise the economies of scope across the Group (Port, Network, Generation etc). This is a new approach and provides the necessary structure to review the quality manuals held and operated by Eastland Network.



Figure 1: Eastland Group Integrated Management System (IMS) structure



In FY2022, we commenced a review of our quality manuals (includes procedures, forms, policies and manuals) to ensure that our documents comply with the standards set out in the Eastland Group’s IMS, as well as ISO 55000 and industry standards. We are currently partway through the review and are looking to complete the rest of the review within the next two years.

Development of asset criticality framework

To accompany our new approach in asset health, we have drafted a methodology to assign asset criticality. Our model is based around the EEA guidelines on assessing risk, however, we have scaled several of the consequence categories (safety, service levels, direct costs and environment) to align with how we think the specific asset should be categorised (e.g. we have removed the environmental risk for several assets as the consequence for any scenario is minor).

Classification of asset criticality is defined through the following tables:

Table 5: Asset Criticality Index

C4	Minor	Credible Consequence of Failure (CoF) is broadly tolerable and run to failure may be a valid strategy
C3	Typical	Asset failure would cause some disruption and inconvenience, but systems are already in place to anticipate and manage outcomes
C2	Elevated	Asset failure would cause significant harm to personnel, assets, the business or the environment. The consequences are tolerable but should be avoided or mitigated if it is practicable to do so
C1	Extreme	The credible consequences of failure could not be tolerated

Presently asset criticality is assigned at a high level (e.g. feeders) and further disaggregation to individual assets will occur over the coming years.

We are currently looking at plotting the results of our assessment on GIS to highlight any critical parts of our network. This will be presented in the FY2023 AMP.



### Improvement in capabilities through collaboration

While Eastland Network has the resources and in house capability to complete most elements of operating a distribution network, we have realised that we can benefit enormously through aligning with other networks and getting out and about and looking at what others are doing.

Our work in this areas included:

- Joining an Asset Management Committee where asset management papers are presented and discussed with other network owners;
- Attending the EEA conference and ENA meetings;
- Increasing the attendance of staff at EEA courses and relevant engineering or operational courses;
- Visiting other networks to see how others are operating.

We have made reasonable progress in our collaboration efforts, however, COVID-19 protocols have limited face-to-face interactions and site visits.



## 5 Review of reliability performance

This section summarises Eastland Network’s reliability and delivery performance for FY2021 and highlights any significant data trends or material changes from previous disclosures.

### 5.1 Overall network reliability

FY2021 was a good year in terms of reliability and performance. Both SAIDI<sup>1</sup> and SAIFI<sup>2</sup> were below the Commerce Commission’s cap and were favourable when compared to FY2020. This was particularly noticeable in relation to adverse weather, which was well below the long-term average.

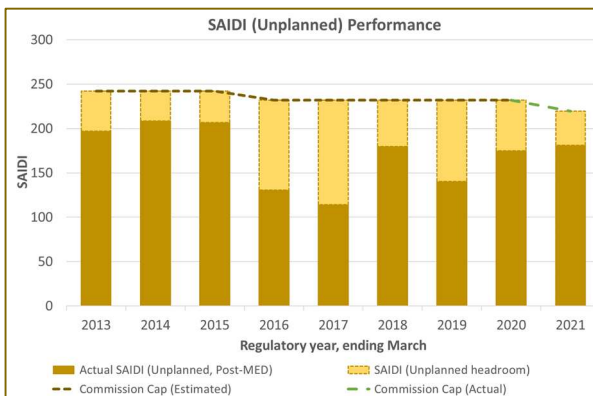
*Table 6: FY2021 reliability performance*

Reliability Measure	SAIDI 2020	SAIDI 2021	SAIFI 2020	SAIFI 2021
Actual (post-MED adjustment)	188.45	181.02	3.101	2.72
Commerce Commission Cap <sup>3</sup>	285.72	219.46	3.77	3.15
RAW Unplanned	199.67	196.03	3.101	2.89

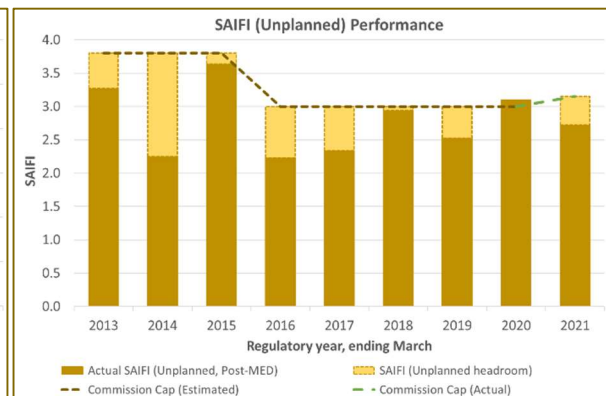
It is important to note that significant changes in both the definition and calculation of major event days (MEDs) occurred between FY2020 and FY2021 (DDP3 to DPP4), hence comparing post-MED unplanned data between the years is now difficult.<sup>4</sup>

The figures below show the unplanned reliability performance trend using post-MED data.<sup>5</sup>

*Figure 2: SAIDI (Unplanned) performance*



*Figure 3: SAIFI (Unplanned) performance*



### 5.2 Key findings from FY2021 reliability review

Each year we undertake a formal review of the prior year’s performance to determine the factors that are affecting reliability. Table 7 summarises the key findings and actions from the FY2021 review.

*Table 7: FY2021 reliability review key findings and actions*

Key findings	Recommended actions
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<sup>1</sup> SAIDI – System Average Interruption Duration Index

<sup>2</sup> SAIFI – System Average Interruption Frequency Index

<sup>3</sup> The Commerce Commission’s cap previously included both planned and unplanned measures. These are now separated with a cap set for each measure.

<sup>4</sup> Factors which are affected by this include:

- The normalisation calculation for MEDs now takes into account a rolling 24-hour period instead of a calendar day.
- New fault codes were introduced in FY2020 which broke out the reporting structure of faults into different categories from historical categories.

<sup>5</sup> Prior to 2021 the Commerce Commission’s cap was a combined planned and unplanned measure. The AMP target approximates the unplanned component of the Commerce Commission’s cap.



<p>FY2021 was a good year with respect to the impact of adverse weather events. Good weather throughout the year meant only 1 MED for the year.</p> <p>The overall percentage of SAIDI and SAIFI contribution from adverse weather reduced from 23% and 12% in FY2020 to 9% and 11% respectively in FY2021. The number of adverse weather outages was the same as historical averages, however, there was an improvement in performance due to significantly faster restoration times.</p>	<ul style="list-style-type: none"> <li>Continue with existing actions to target worst performing feeders. Monitor 6-monthly to determine if there is a change in performance and alter schedules to suit.</li> <li>Ensure design and construction standards are up to date and lines are built and replaced based on the surrounding environment.</li> <li>We have several areas that are greater than 2 hours from the nearest depot. When localised weather events are forecast, faultmen are sent to stay within the area to minimise response times.</li> </ul>
<p>The amount of third-party interference events has increased dramatically.</p>	<ul style="list-style-type: none"> <li>Work with other networks to see what the industry is doing to manage this.</li> </ul>
<p>Conductor faults increased in frequency and overall consequence, suggesting a potential decrease in performance for this asset type. Conductor faults were concentrated in seaside areas such as Hicks bay, Te Araroa and Mahia, as well as inland areas such as Matawai, Raupunga and Frasertown. The failures are likely an indicator that conductor in some areas is approaching end-of-life.</p>	<ul style="list-style-type: none"> <li>We are reviewing the conductor replacements program to ensure that we are targeting areas of unreliability.</li> <li>Ensure that fault response and control room are assigning the right outage category.</li> </ul>
<p>Cause unknown faults remain high with increasing consequences due to longer restore periods. This is linked to the requirement to patrol lines before reclosing.</p>	<ul style="list-style-type: none"> <li>Continue with automation plan to sectionalise network further and minimise affected consumers.</li> <li>Review reclosing operating procedures based on EEA guide.</li> </ul>
<p>An intermittent tap-changer fault in Wairoa was responsible for all the zone substation equipment related outages.</p>	<ul style="list-style-type: none"> <li>Continue monitoring SEL TEAMS software to monitor if relays are sensing earth fault pick-ups.</li> <li>Ensure tap-changer maintenance (as per fleet plan) is being completed.</li> </ul>
<p>We experienced a near 60% increase in the number of distribution faults in FY2021. The increase in the number of faults related to the inclusion of 11kV fuse faults in count.</p>	<ul style="list-style-type: none"> <li>Liaise with industry and regulators to determine the correct methodology for the disclosures re: single phase, three phase, and private service mains faults.</li> </ul>

### 5.3 Vegetation outage performance

Due to the length of our distribution and subtransmission lines and the region's topography, vegetation is an issue for our operations. A vegetation management plan was established to reduce vegetation related outages.

FY2021 results show that our underlying vegetation SAIDI was slightly above target. However, overall SAIDI (including storm events) was 25% below target. Vegetation SAIFI was 46% below target. The results are consistent with the more settled weather experienced during FY2021.

*Table 8: Vegetation SAIDI target and actual performance for FY2021*

Vegetation SAIDI Target & Actuals	FY2021	FY2021A	FY2022	FY2023	FY2024	FY2025
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Underlying Vegetation SAIDI (RAW)	41	43.3	39	37	36	34
Storm Event Vegetation (RAW)	27	7.7	25	24	23	22
<b>Vegetation SAIDI (RAW)</b>	<b>68</b>	<b>51</b>	<b>65</b>	<b>61</b>	<b>59</b>	<b>56</b>

Table 9: Vegetation SAIFI target and actual performance for FY2021

Vegetation SAIFI Target & Actuals	FY2021	FY2021A	FY2022	FY2023	FY2024	FY2025
Underlying Vegetation SAIFI (RAW)	0.49	0.31	0.46	0.44	0.42	0.4
Storm Event Vegetation (RAW)	0.18	0.05	0.17	0.16	0.15	0.15
<b>Vegetation SAIFI (RAW)</b>	<b>0.67</b>	<b>0.36</b>	<b>0.63</b>	<b>0.6</b>	<b>0.57</b>	<b>0.55</b>

Work on and around the subtransmission lines (consistent with the vegetation management plan) was highly effective with no vegetation related outages in FY2021. This improvement assisted in reducing the number of customers impacted by vegetation outages (as can be seen in the favourable SAIDI and SAIFI performance).

## 5.4 How is reliability tracking in FY2022?

FY2022 has been a challenging year for reliability and we are tracking above our targets for SAIDI, but below the Commerce Commission’s cap (refer Figure 4 below). Adverse weather events have had the most significant impact, with four out of the top five outages being weather related. Although it is difficult to definitively assign climate change as the cause, the increase in Metservice’s weather watches and warnings, and the severity of some of the events, suggest a trend is occurring. We are currently working on our climate change risk review and additional detail will be included in our 2023 AMP.

Given our current performance, we have undertaken additional projects to improve performance (see Table 11), however, we are not likely to see the benefits of these until (at a minimum) the middle of the next financial year.

Figure 4: Accumulative Unplanned SAIDI FY2022

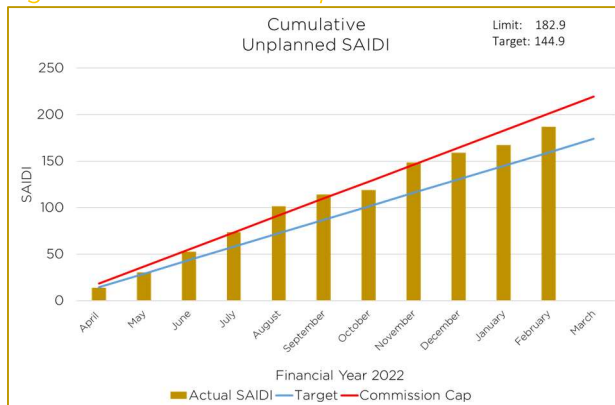
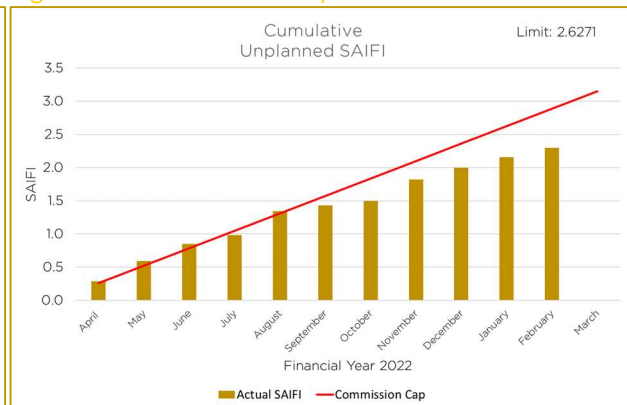


Figure 5: Accumulative Unplanned SAIFI FY2022



## 5.5 Forecast reliability performance

There is no change to our forecast reliability targets.



## 6 Material changes to asset lifecycle plans (network development)

### 6.1 Introduction

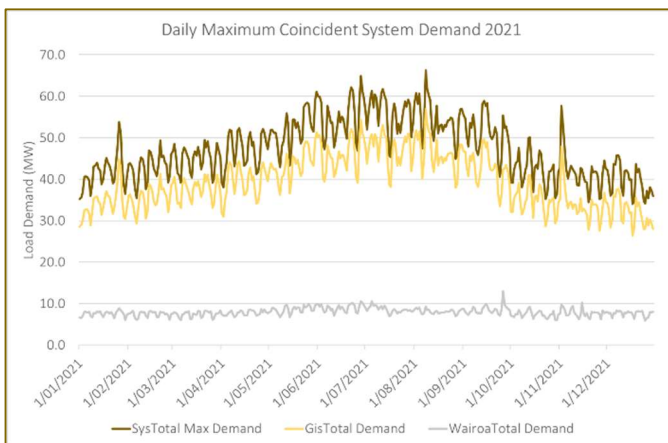
This section provides an overview of the material changes to our network development plans. While there are minimal changes to our forecast demand, forecast capacity, and expenditure, we have provided a brief summary of each section to provide stakeholders with a summarised version of these asset management topics.

We have also commented on the progress on a number of key initiatives that support our asset management strategy.

### 6.2 New maximum demand recorded in August

The cold weather in August 2021 created a maximum demand on the network higher than ever previously recorded, drawing approximately 66.3MW in total at the Tuai GXP. This is roughly 2MW higher than any other daily maximum demand reading. It is important to note that Eastland Network's diesel generation, hydro generation, and load control kept the load well within our N-1 operating capacity at both the Wairoa and Gisborne substations. We see this event as an outlier and have not altered our forecasts based on this single day event.

Figure 6: Maximum Daily Demand GXP



### 6.3 Automation strategy progress

As indicated in previous AMP's, based on the size of our network, automation may not be utilised to its full potential. A full review of our network configuration was completed in FY2022, which identified 14 areas that would benefit from additional automation. We have programmed these projects to be completed over the next five years. This work commenced in FY2022 with the addition of two reclosers.

### 6.4 Protection review progress

The configuration of protection settings typically evolves over time in response to growth, network extensions, and protection failures. Periodic review of protection configuration is appropriate to ensure optimal performance. We have approached an external consultancy to review our protection schemes and to update our load flow model to ensure that fault levels and protection discrimination





is correct. While we have not encountered any operational issues, confirmation that our protection settings are appropriate, or suggestions for improvement are always welcomed.

We are currently trialling the SEL TEAMS software which monitors all IP capable relays. We have seen the benefit of being able to log flag-trends and survey feeders for intermittent faults before a real issue arises.

## 6.5 Progress on the energy transformation roadmap

In the 2021 AMP, we stated that the network will generally be able to cope with the expected electric vehicle (EV) and small-scale distributed generation (SSDG) uptake until around 2032. We also outlined the actions we would be pursuing to ready the business for the energy transformation.

Table 53 in the 2021 AMP set out our development pathway to respond to the energy transformation. An update on the FY2022 activities is provided in the table below.

*Table 10: Progress on our response to the energy transformation*

Key findings	Progress update
Investigation and monitoring	Monitoring activity continued during FY2022. Importantly, we note the work that the Electricity Authority undertook in relation to the regulatory setting to better enable flexibility services. <sup>6</sup> We agree that it is necessary to update regulatory arrangements to ensure that they support the efficient connection and utilisation of new technologies to deliver a secure, reliable and cost-effective supply of electricity. We supported the submission made by the Electricity Networks Association <sup>7</sup> , and consider that our development pathway is well aligned to the direction set out in the Electricity Authority's work.
Developing services and tariffs that reflect the needs of different types of consumers	In relation to pricing, we continue to progress the evolution of tariffs in line with our pricing roadmap. Recent work has included: <ul style="list-style-type: none"> <li>• The introduction of time-of-use tariffs from 01 April 2021 for all customers with a smart meter;</li> <li>• The increase in fixed charges.</li> </ul> These actions improve the cost reflectiveness of our prices. To further improve the cost reflectiveness of our prices, we intend to review our solar generation charge over the next year. This tariff is intended to reduce the subsidy these consumers receive by avoiding network variable charges, and hence better signal the true cost of supply to solar installations.

The significant actions are to commence in FY2023, and we will report more fully on progress in the 2023 AMP. We also expect to better signal the cost of the energy transformation in our 2023 or 2024 AMP.

## 6.6 Changes to major projects

There are several projects which we have added to (or deferred from) the expenditure forecasts. Details of the changes are outlined in Table 11.

<sup>6</sup> <https://www.ea.govt.nz/development/work-programme/evolving-tech-business/updating-regulatory-settings-for-distribution-networks/>

<sup>7</sup> <https://www.ea.govt.nz/assets/dms-assets/29/ENA-Updating-the-Regulatory-Settings-for-Distribution-Networks.pdf>



Table 11: Major project changes

Project	Change	Project description and rationale for change
Tokomaru 110kV Line	New	<p>Eastland Network's purchase of the Transpower assets has meant that reinstating the 110kV line has become a viable option and will provide security to half of the East Coast 50kV subtransmission line. The plan involves converting the 110kV line to 50kV at the Gisborne substation and joining into the Tokomaru Bay 50kV section. The benefits include:</p> <ul style="list-style-type: none"> <li>• Increased security for half of the East Coast 50kV line;</li> <li>• No customer interruptions for planned work on the Gisborne - Tokomaru Bay subtransmission line;</li> <li>• Increased reliability for the East Coast region;</li> <li>• Minimal cost in design and construction.</li> </ul> <p>The project has the potential disadvantage that it decreases the line capacity should a major generator wish to connect along the line. Presently we consider the benefits significantly outweigh this disadvantage.</p> <p>Increase in capex of \$120k in FY2023.</p>
Lock/security Upgrade	New	<p>Our current lock system for our assets has been identified as a risk to our network as the current keys can be easily copied. We are proposing to transition to another supplier where key access can be tightly controlled. The locks will also have a hierarchical system where access to assets will be controlled based on qualification and approvals. The installation of these locks and keys will occur over the next three years.</p> <p>Increase in capex of \$200k per year in FY2023 to FY2025.</p>
300kVA Generator	New	<p>We have seen great benefits from our existing portable generator, which is being used to support planned and unplanned outages. With the increase in pole replacements (see asset lifecycle plans) an additional generator will reduce planned outages and will also provide a second generator to support unplanned outages. Increase in capex of \$200k for FY2023.</p>
Base power units	New	<p>We have identified several rural connections on our network where the access, reliability and condition of the assets has made alternate power sources a viable option. We have approached Base Power to provide a solution for these sites. This approach is new for Eastland Network, hence the first installation will serve as a trial.</p> <p>Increase in capex of \$250k for FY2023.</p>
Mahia Beach 400V Upgrade	Deferral	<p>Deferred due to the accelerated pole replacement program. Due to the current growth in the area, the deferral of this project is considered low risk. \$100k deferred from FY2024 and FY2025 to FY2026.</p>
Fibre cable from Kaiti to Gisborne	Deferral	<p>Deferred due to the accelerated pole replacement program. Project is considered low risk. This project will increase communication reliability, however, a one-year delay is not considered to be significant. \$60k deferred from FY2025 to FY2026.</p>
Gisborne substation 50kV Underground	Deferral	<p>Deferred due to the accelerated pole replacement program. Project improves clearances at the substation. The one-year deferral is not considered to be significant. \$90k deferred from FY2024 to FY2026.</p>
Duncan Rd cable upgrade	Removed	<p>Project was customer driven and customer need has not materialised. \$100k removed from FY2025.</p>



# 7 Material changes to asset lifecycle plans (network maintenance and renewal)

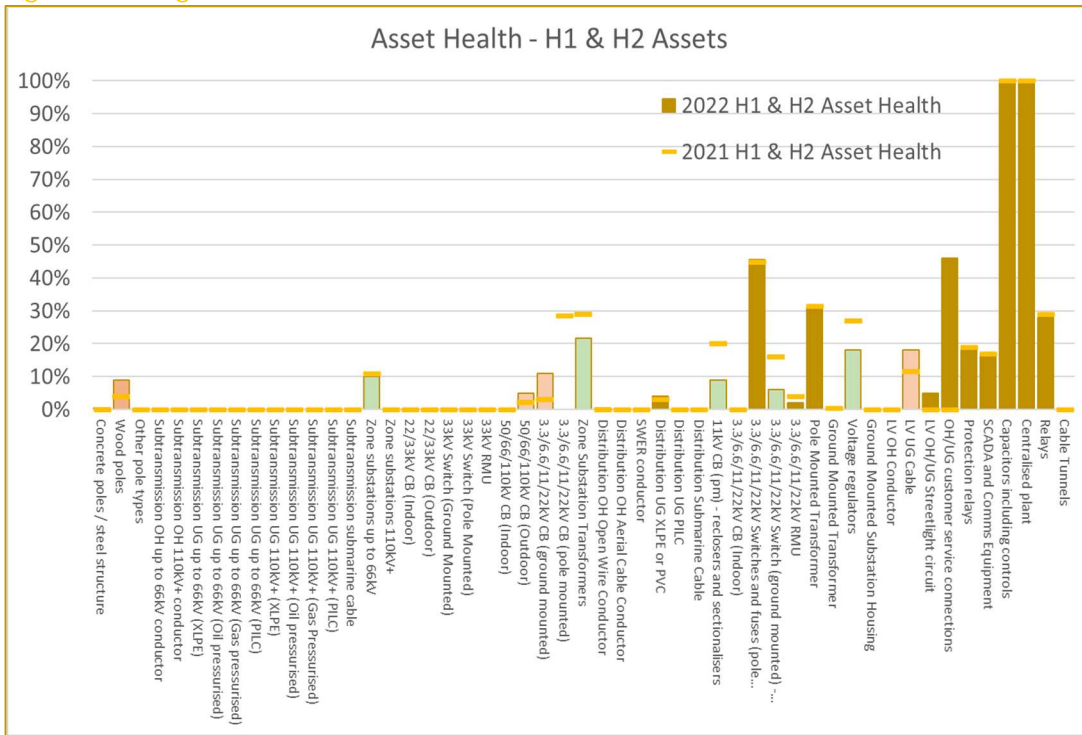
## 7.1 Changes in the assessed health of the assets

Our principal asset lifecycle strategy is to mitigate the risks posed by ageing and/or poor condition assets on our network. This typically involves life extension maintenance or replacement of H1 and H2 assets before end-of-life failure (the strategies for our material asset classes were detailed in the fleet plans included in the 2021 AMP).

Adopting the DNO Asset Health Methodology required new asset inspection standards to be created and new inspections to be undertaken. To fast track the condition monitoring, we set an ambitious target of three years to complete the condition monitoring of our material assets. This year we added several inspectors to our team to enable us to complete more inspections. We also automated the asset health spreadsheets and these now link to data fields within SAP. This has significantly improved the efficiency of the asset health assessments.

This work has seen an increase in the number of H1 and H2 assets for several asset classes (refer Figure 6).<sup>8</sup>

Figure 6: Changes in asset health between the 2021 AMP and 2022 AMP



Note: The light red bars illustrate an increase in H1 and H2 assets and the green bars indicate a decrease.

Material changes in asset health are summarised in Table 12 below:

<sup>8</sup> Assets are graded between H1 (end of life criteria present) to H5 (as new).

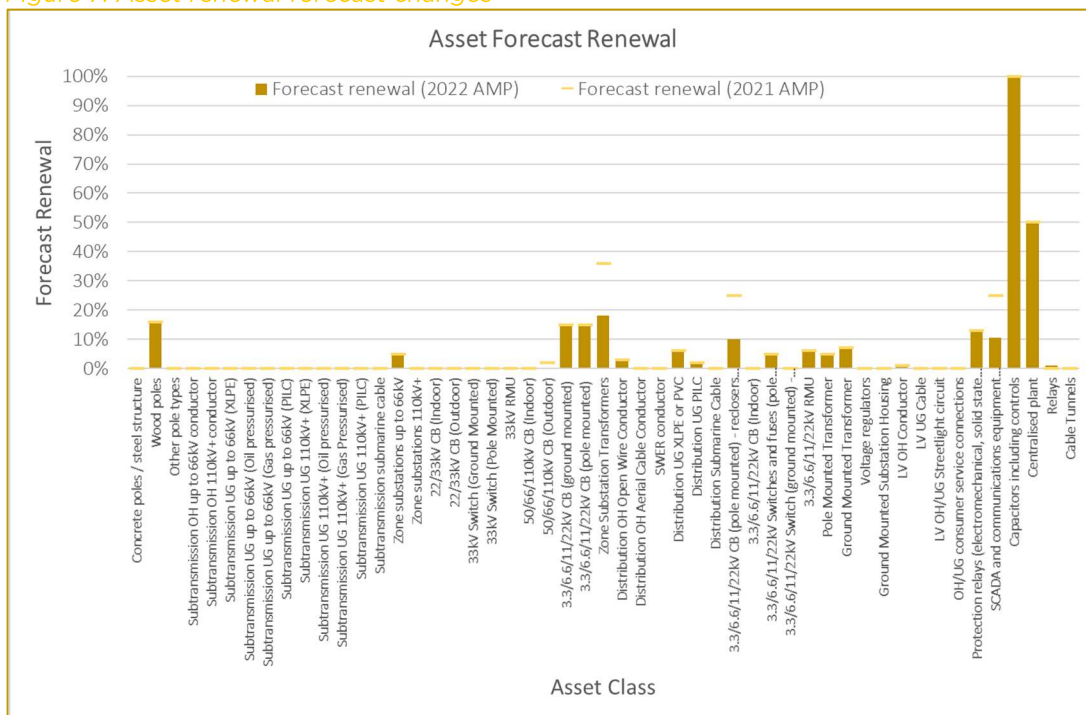


Table 12: Material changes in asset health

Asset class	Change in H1/H2	Reason for change	Response
Wood pole	Increase	Completion of inspections using the DNO methodology	Acceleration of wood pole replacements. Refer Section 7.2 below.
50/66/110kV CB (outdoor)	Increase	Several units have been found to have insulation leaks. One unit left remaining with oil insulation.	Continue with repairs and monitor.
Reclosers/ Sectionalisers	Decrease	KFE reclosers were identified as having type issue failure risks due to the insulation chamber deterioration and failure of the contact coils). Four older units have been replaced and there is one KFE recloser remaining on the network, which is scheduled for replacement in FY2023.	Continue as per current fleet plan.
Zone substation transformers	Decrease	Recent replacements of single-phase power transformer banks.	Continue as per current fleet plan.
11kV Ground Mounted Switchgear	Decrease	Completed replacements of most of the H1 and H2 units found in FY2021.	Continue as per current fleet plan.

The changes in H1/H2 classification has resulted in a number of changes to forecast renewals in Figure 7. The change in forecast renewals is consistent with the change in asset health shown in Figure 6 (noting that the change to wood pole replacements relates to timing within the 5-year window, and a more accurate unit costing for the work, which is further explained in Section 7.2 below).

Figure 7: Asset renewal forecast changes



## 7.2 Change in wood pole asset health and acceleration of pole renewals

Whilst the increase in H1 and H2 poles (Figure 6 above) is not substantial we have yet to complete a full round of inspections and have decided to 'front foot' any potential increase in H1 and H2 wood poles by accelerating our pole replacement program.

### 7.2.1 Pole Inspections

Inspectors have completed over a third of the pole inspections (concrete and wood). A visualisation of progress to date is shown in Figure 8 below. Inspectors are utilising the 'EEA - Timber Pole Condition Guide' for assessing poles, and moderation of inspection results has been undertaken to ensure consistency across inspectors.

Presently H1 & H2 poles comprise 7.2% of inspected poles. This high rate is driven by our inspection prioritisation (where we commenced inspection in areas with known pole health issues) and we are expecting the rate to drop as inspections move into urban and areas with newer populations of wood poles.

Figure 8: Pole inspection map



### 7.2.2 Changes to asset health and timing of renewals

The 2021 AMP identified 770 grade H1 and H2 wood poles would be present by the end of FY2026 (before any renewal). Given the expected transition of H3 poles to H2 and uncertainty as to the quality of the current data (where we suspected that the actual level of H1 and H2 poles was higher than reported), we forecast a total of 2,930 poles would be replaced between FY2022 and FY2026 (using current unit costs, this would be 2,400 poles).

Current date has identified 1,544 poles with condition grade H1 and H2. We continue to forecast there will be 2,930 poles reaching condition grade H1 and H2 over the next 5-years (i.e. by the end of



FY2027). We are also forecasting to replace all H1 and H2 poles over the next 5-years and the budget has been increased to reflect current costs for replacement.

Our forecast renewals exceed the current assessment of H1 and H2 poles to allow for the replacement of poor health poles that have yet to be identified.

*Table 13: Wood pole health assessment*

Voltage	Pole Type	2021 AMP:	Current	2022 AMP:
		Forecast grade H1 & H2 assets (by FY2026), before renewal	grade H1 & H2 assets	Forecast grade H1 & H2 assets (by FY2027), before renewal
Subtransmission	Concrete	0	1	2
	Wood	50	135	256
Distribution	Concrete	0	204	387
	Wood	677	1059	2010
Low Voltage	Concrete	0	7	13
	Wood	43	138	262
Total		770	1,544	2,930

Based on the current inspection data, we are forecasting the composition of the H1 and H2 poles to be more significantly weighted to H1 (i.e., a nearer term issue). Hence, there will be a more significant requirement to replace poles over the next 2-3 years.

Given the increase in H1 condition poles, and the expectation that additional poor condition poles will be identified, we have accelerated our pole replacement program to ensure all H1 poles are replaced as soon as practical. This acceleration is in line with our asset fleet strategy. The accelerated replacement program is effectively 'bringing forward' an additional 530 poles to be replaced during FY2023 and FY2024.

*Table 14: Change in pole replacement program*

Forecast	FY2022	FY2023	FY2024	FY2025	FY2026	FY2027	Total
2021 AMP pole replacements	481	481	476	476	485	-	2,400 <sup>9</sup>
2022 AMP pole replacements	-	752	750	349	589	489	2,930
Change	-	271	274	(127)	104	-	530

### 7.2.3 Program cost

The additional cost in FY2023 and FY2024 is \$4.4 million (when compared to the 2021 AMP) and is in addition to our regulatory capex allowance.

### 7.2.4 Program delivery

This accelerated pole replacement profile is of sufficient scale to enable an external contractor to establish within the region for the two-year duration of the program (our existing contractor does not have the capacity for the additional work). The new contractor will enable us to compare prices and assess the efficiency of our existing contractor.

<sup>9</sup> In the 2021 AMP, we forecast 2,930 poles to be renewed in the next 5-years. This was based on historical pole replacement costs. Based on current pole replacement costs, this would equate to 2,400 poles.



## 7.2.5 Changes to other renewal programs

We have assessed other development and renewal programs and have deferred a number of projects to accommodate the increase in pole replacement expenditure in FY2023 and FY2024. Project deferrals have only been included where the risk presented by the deferral is manageable (refer Table 11 and Table 15).

With the deferrals, the increase in expenditure due to the acceleration program is forecast to be \$1,915k for FY2023 to FY2025.

*Table 15: Changes in renewal programs*

Project	Change	Project description and rationale for change
Vehicle replacements	Partial deferral	The replacement of vehicles has been reduced by 50% for the next three years. Our fleet is well maintained and while the increase in age of some vehicles may result in a minor increase in unplanned maintenance, this is not considered to be a material risk.  Deferred \$180k from FY2023-FY2025 to FY2026-FY2028.
>100 kVA transformer replacements	Partial deferral	This fleet has been well monitored and maintained and is in good health (with no H1 or H2 assets). A one-year deferral of 50% of the program is considered low risk. Assets to be deferred will undergo an additional inspection.  Deferred \$135k from FY2025-FY2026 to FY2027.
11kV pole replacements, Gisborne	Partial deferral	Pole replacements will be reduced by 33% in FY2025. This deferral is after the completion of the full inspection cycle and accelerated pole replacement programme; hence it is considered low risk as all poor health assets will have been replaced. The remaining program has the capacity to cater for any H3 assets that progress to H2 in FY2025. Assets to be deferred will undergo an additional inspection.  Deferred \$500k from FY2025 to FY2026.
11kV pole replacements - Wairoa	Partial deferral	As above.  \$300k deferred from FY2025 to FY2026.
50kV poles replacements	Partial deferral	As above.  \$170k deferred from FY2025-FY2026 to FY2030.
11kV fault related pole replacements	Partial deferral	A lower level of faults and replacements is expected immediately following the accelerated pole replacement program.  \$50k deferred from FY2025 to FY2026.
11kV ground-mount distribution switchgear replacements	Partial deferral	A one-year deferral of 50% of the program is considered low risk as the fleet is in good health. The program will replace all H1 and H2 assets in FY2023 and FY2024. Assets to be deferred will undergo an additional inspection.  \$125k deferred from FY2025-FY2026 to FY2027.
Zone substation 11kV switchgear replacements	Deferral	A one-year deferral of the zone substation switchgear replacement programme. Assets to be deferred will undergo an additional inspection.  \$440k deferred from FY2025 to FY2026.
Conductor replacement - Wairoa	Deferral	The conductor replacement programme was due to ramp up in FY2025. The ramp-up has been deferred for one year. The program is considered to be sufficient to replace H1 and H2 assets



Project	Change	Project description and rationale for change
		between FY2023 and FY2025 (which includes replacing conductor in the target areas identified in Table 7 above). Assets to be deferred will undergo an additional inspection. The minor change to this program is considered to be low risk.  \$134k deferred from FY2025 to FY2026.

### 7.3 Vegetation management strategy progress

Eastland Network's vegetation management plan was established in 2020 with the objective to reduce vegetation related outages. The target was to achieve a 5% annual reduction in vegetation related outages for FY2021 to FY2025 (using the averages from FY2013 to FY2020 as a baseline).

To achieve these targets, a six-point strategy was developed and Table 16 (below) summarises progress made during FY2022.

*Table 16: Vegetation management strategy progress*

Strategy	Progress
1. Resolve the performance of the worst performing feeders.	Processes are in place and are operating as 'business-as-usual'. During inspections, a large number of trees were identified as being a potential hazard to the lines. Remediation of these trees is in progress and will take several years to complete.
2. Target inspection and remediation work in high priority areas and widen the inspection to consider tree fall hazards on critical sections of feeders.	High priority areas have been targeted. Three feeders where work has been completed show a significant reduction in vegetation related outages.
3. Undertake intensive subtransmission vegetation management.	Inspections have been completed and all trees within the minimum approach distance (MAD) have been removed. Several trees outside of the MAD are still to be remediated, however, the risk posed by these is considered 'low'.
4. Engage with forestry owners to achieve acceptable plantation fall zone and harvesting clearances.	At the start of FY2021, we improved the categorisation of vegetation outages. Reporting now indicates that forestry faults contribute to 20-25% of vegetation related unplanned faults. This is less than previously reported. Communication with forestry owners continues to strengthen and a point of contact has been established through the Eastland Wood Council.
5. Detect vegetation hazards early through SCADA monitoring of earth fault pick-up (pre-trip).	Processes are in place and are operating as 'business-as-usual'.
6. Improve vegetation maintenance of existing line corridors.	Processes are in place and are operating as 'business-as-usual'.





## 8 Change to risks

A specific risk has been added to the risk register in relation to wood pole health. The accelerated pole replacement program is the control that has been applied to this risk. It is expected that this risk will be closed at the completion of the accelerated pole replacement programme at the end of FY2024.

There were no other changes to risks.



# 9 Financial forecasts

## 9.1 Summary of changes in expenditure forecasts

The changes in capex are due to the inclusion of the accelerated pole replacement program and the deferment of a number of programs and projects (as described in Table 11 and Table 15). There is a net increase in capex of \$1,915k for FY2023 to FY2025.

There are no material changes in opex.

Figure 1: Forecast capex

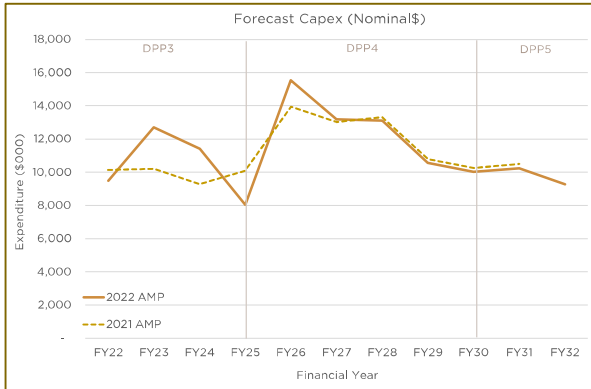
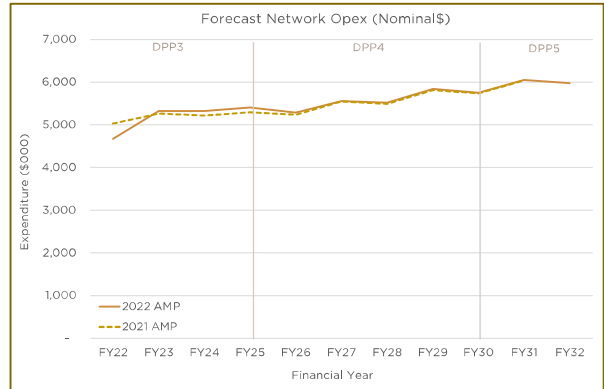


Figure 2: Forecast opex



## 9.2 Changes in network capex categories

Figure 1: Forecast customer connection capex

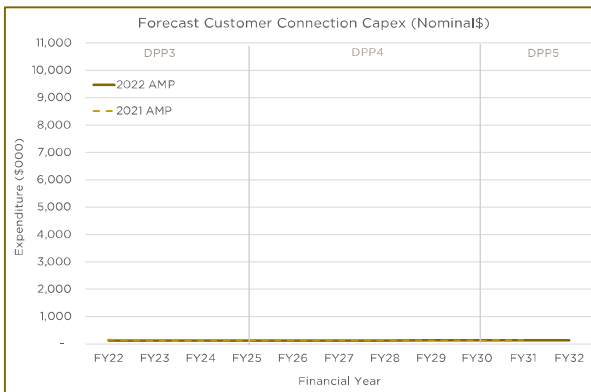


Figure 2: Forecast system growth capex

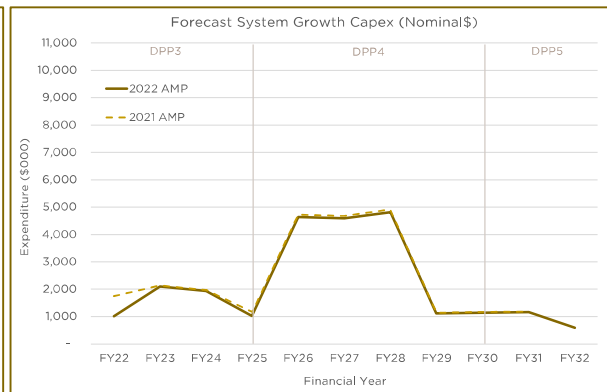


Figure 1: Forecast replacement and renewal capex

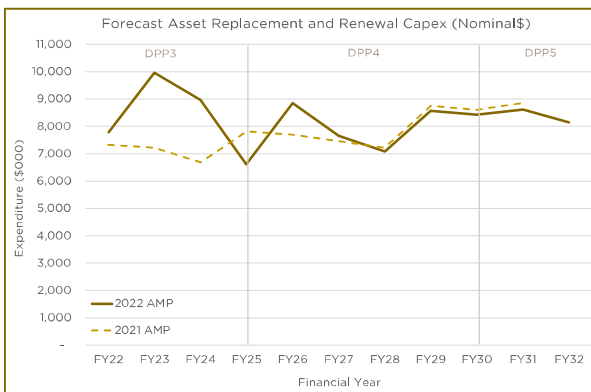


Figure 2: Forecast asset replacement capex

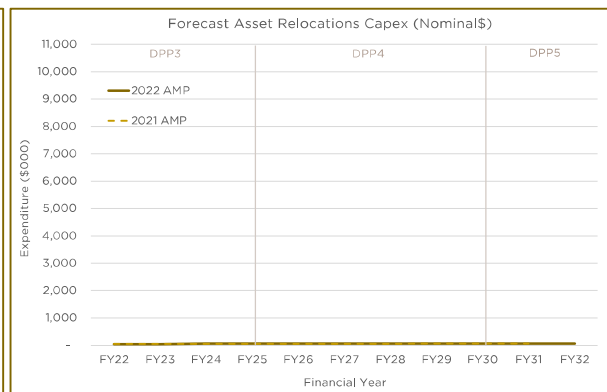
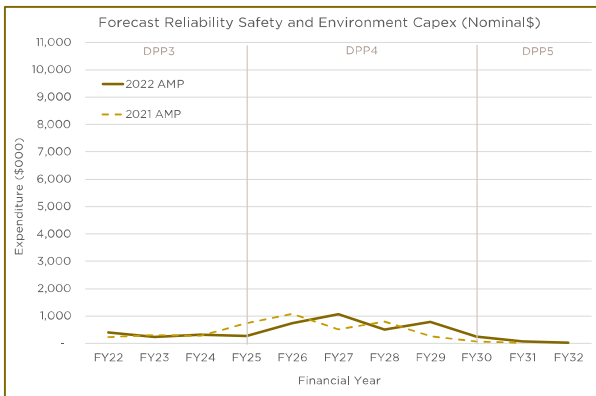


Figure 1: Forecast reliability, safety and environmental capex



### 9.3 Changes in network opex categories

There are no material changes to the network opex forecasts.

Figure 1: Forecast service interruptions and emergencies opex

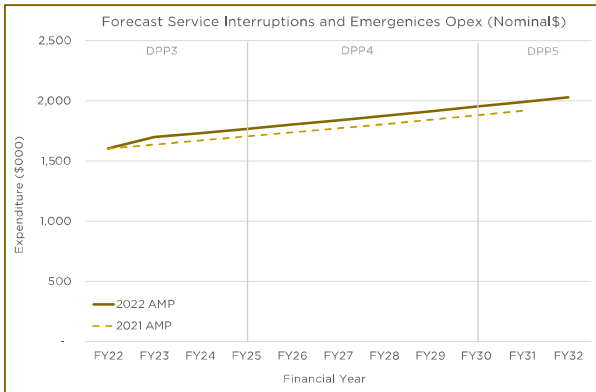


Figure 2: Forecast vegetation management opex

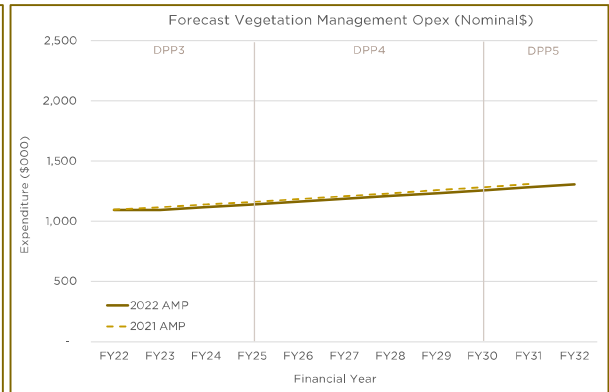


Figure 1: Forecast routine and corrective maintenance and inspection opex

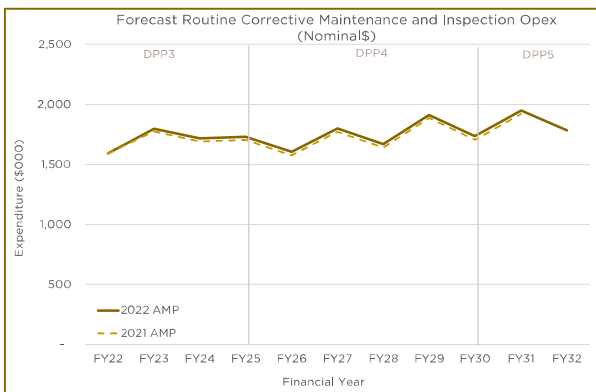
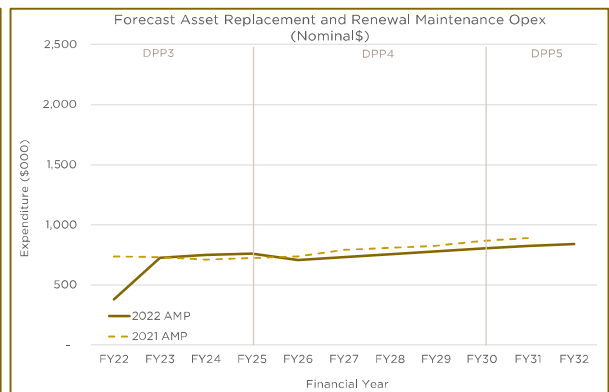


Figure 2: Forecast asset replacement and renewal opex



### 9.4 Changes in non-network capex and opex categories

There are no material changes to the non-network opex and capex forecasts.



Figure 1: Forecast system operations and network support opex

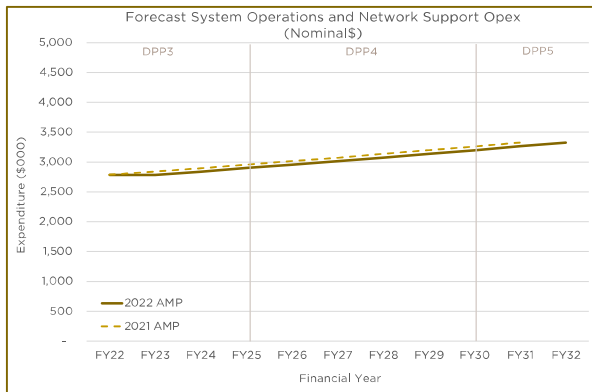


Figure 2: Forecast business support opex

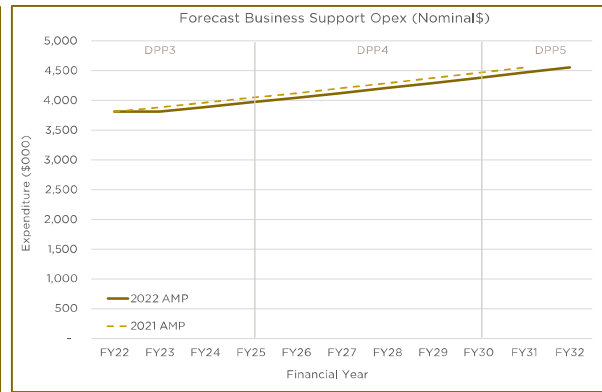
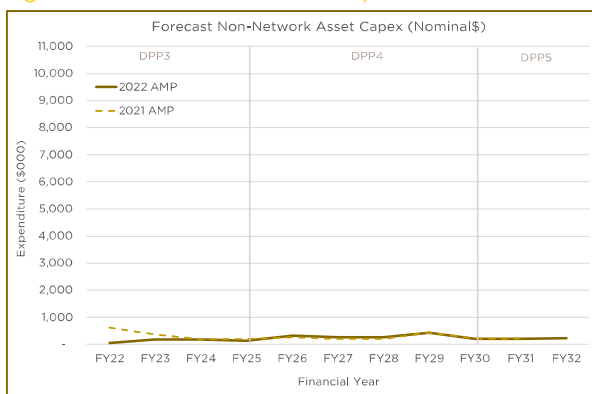


Figure 1: Forecast non-network capex



## 9.5 Basis for escalation of constant prices from 2021 AMP to 2022 AMP

We have experienced a price increase for a range of equipment and materials during FY2022 and have incorporated this increase where we have made changes to projects and programs. We have yet to incorporate a wholesale escalation in constant prices as we are yet to determine whether the price increases are temporary or permanent, and we are still working on efficiency initiatives to minimise the increase in costs, which includes assessing alternative materials. We intend to make wholesale updates to project costs in the 2023 AMP.

Forecast salary increases have been incorporated into the non-network opex categories.





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# Attachment One: Directors' Certification

## CERTIFICATE FOR YEAR-BEGINNING DISCLOSURES Asset Management Plan - Update 2022

Clause 2.9.1

We, Matanuku Mahika and Jon Edmund Nichols, being directors of Eastland Network Limited certify that, having made all reasonable enquiry, to the best of our knowledge:

- a) the following attached information of Eastland Network Limited prepared for the purposes of clause 2.6.1, 2.6.3, 2.6.4, 2.6.5 2.6.6 and 2.7.2 of the Electricity Distribution Information Determination 2012 in all material respects complies with that determination.
- b) The prospective financial or non-financial information included in the attached information has been measured on a basis consistent with regulatory requirements or recognised industry standards.
- c) The forecasts in Schedules 11a, 11b, 12a, 12b, 12c and 12d are based on objective and reasonable assumptions which both align with Eastland Network Limited's corporate vision and strategy and are documented in retained records.

Dated this 23rd day of March 2022

Jon Nichols

Director Name

[Signature]

Director Signature

MATANUKU KIHIRIM MAHIKA

Director Name

[Signature]

Director Signature